

## DIRECTED PRACTICE

ESTIMATED TIME 20 MIN

## Germinating Seeds

## GROUPING

two groups

## MATERIALS PER GROUP

- marigold seeds
- refrigerator
- two dishes
- two pieces of cotton
- water bottle

## OBJECTIVE

Students will recognize that seeds need warmth to germinate.

## TEACHER BACKGROUND

Seeds are not like green plants. They do not need carbon dioxide and sunlight because they do not have chlorophyll. They cannot perform photosynthesis. Seeds, like green plants, need air to get oxygen. Seeds also are affected by temperature. Most seeds need warm temperatures to germinate.

## ADVANCE PREPARATIONS

- Gather the materials for this practice. You can use any available seeds.
- Prepare two stations with the materials.
- Divide children into two groups and assign each group to a station.



## SAFETY PRECAUTION

Students should wash their hands after the activity.

## DIRECTED PRACTICE

## MATERIALS



## Germinating Seeds



**Ask a question:** Do seeds need warmth to germinate?

- 1 Put a wet piece of cotton in each dish.
- 2 Put the same number of seeds in each of them.
- 3 Put one dish in a refrigerator and put the other dish in your drawer.

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## SCIENCE SKILLS

By the end of this practice, students will have used the following science skills:

- Observe
- Record observations
- Draw a conclusion



## ANCHOR ACTIVITY

Use the Anchor Activity for this lesson as a warm-up to gauge student prior knowledge and help them engage at the beginning of class.

- 4 Water each dish every day for a week.
- 5 **Observe** the germination of seeds every day.
- 6 **Record**  
Record your observation after a week.

Seeds in Refrigerator	Seeds in the Drawer

- 7 **Draw a conclusion.**  
Do seeds need warmth to germinate?

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## EXPECTED RESULTS

Students will find that seeds in the refrigerator germinate at a slower rate than seeds at room temperature.

## EXPLANATION

Without warm enough temperatures, a seed will not germinate and grow.

## CONCLUSION

Seeds need warmth to germinate.



## STEPS

- 1 Help students to spread a piece of cotton in each dish.
- 2 Have them put the same amount of the same kind of seeds in each dish, to make a fair test.
- 3 One group will put one dish in the refrigerator, and the second group will put the other dish in a safe place in the classroom.
- 4 Have students add water to their seeds every day for a week.
- 5 **Observe**

**SAY** Observe the seeds every day at the end of the day.

- 6 **Record**

**SAY** Make a drawing of your observations after one week.

Seeds in refrigerator	Seeds in the drawer
<p>Possible answer: Seeds do not change.</p> 	<p>Possible answer: The seeds have germinated to produce small seedlings that sprouted out of the cotton.</p> 

- 7 **Draw a conclusion.** Encourage students to answer the question.  
Possible answer: Yes, seeds need warmth to germinate.